

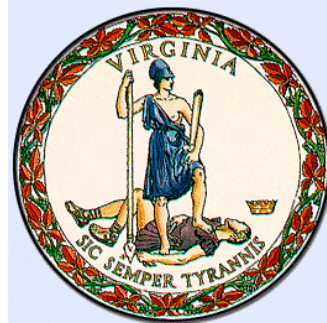
Agenda for Stakeholders Meeting

- **Welcome & Introductions - Alan Pollock**
- **Overview of the VA Nutrient Criteria Development Plan - Jean Gregory**
- **Discussion about the AAC Report - Dr. Carl Zipper**
- **Stream Periphyton/Nutrient Studies - Jean Gregory**

Presentation to the Stakeholder Workgroup

Development of Regulatory Freshwater Nutrient Criteria for Virginia Lakes/Reservoirs and Streams/Rivers

August 18, 2004



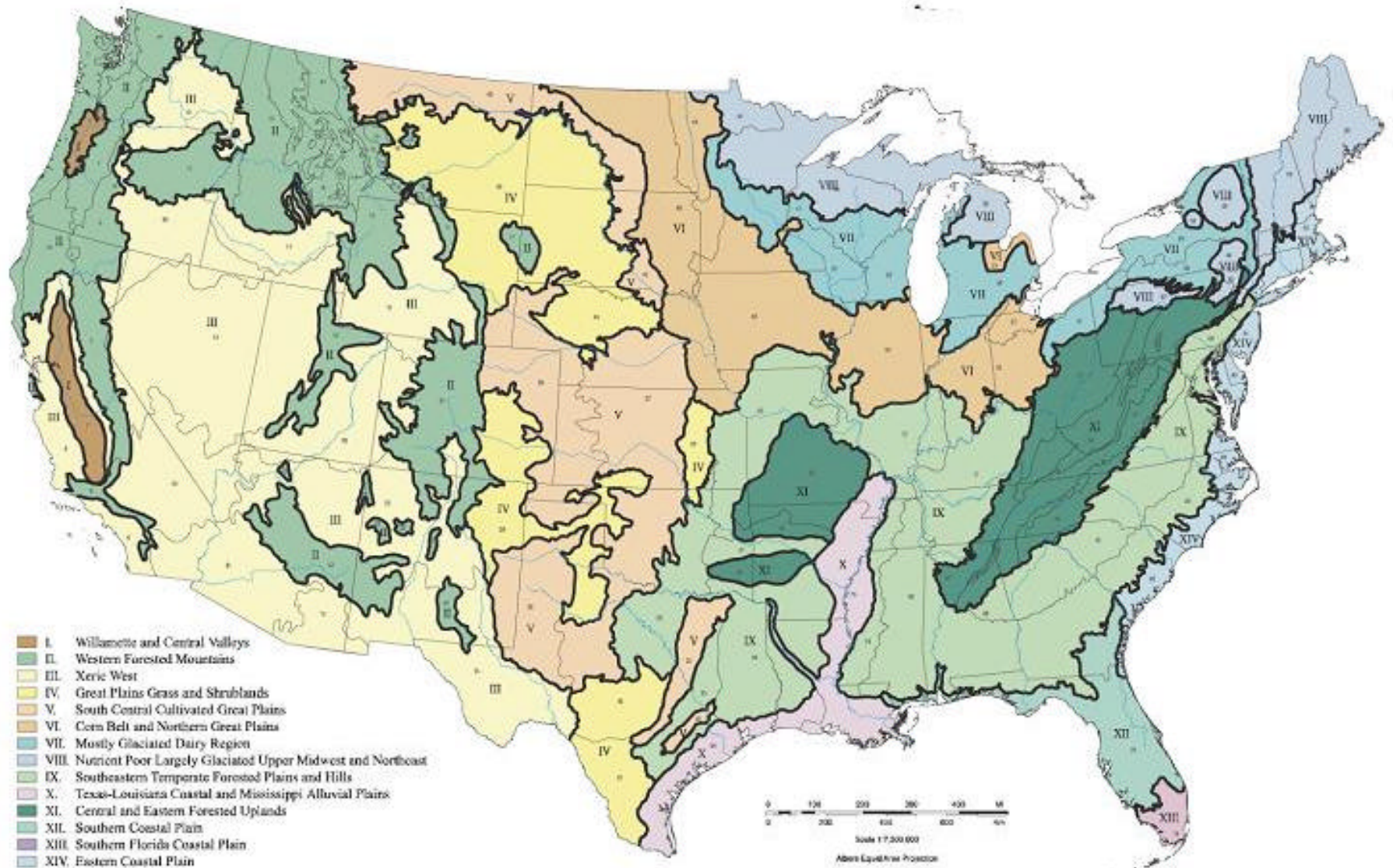
EPA's Approach to Nutrient Criteria

- Identified a geographic region approach (James Omernik's ecoregions)
 - ◆ 14 **nutrient ecoregions** (aggregations of 84 level III ecoregions)
- Developed **technical guidance documents** based on waterbody types (lakes/reservoirs; rivers/streams; estuarine/coastal; wetlands)
- Scientific peer review conducted on both methods and results

EPA's Approach to Nutrient Criteria (cont.)

- Derived nutrient criteria based on **water body type in a particular ecoregion** to be used as a starting point (estuary criteria not expected to follow ecoregional approach)
- Utilize **reference condition approach** to represent minimally impacted conditions
 - ◆ Tailor reference condition and criteria **by nutrient ecoregion and waterbody type**
 - ◆ Address causal (**N & P**) and response (**chlorophyll a, turbidity**) variables

Nutrient Ecoregions



EPA Action: Analysis of Ecoregion/Waterbody Dataset

- The “best” 25% in each ecoregion were assumed to represent waters least impacted, assumed reference condition
- The parameter values of the 25th percentile are drafted as proposed W/Q criteria recommendations
- The numerical recommendations are published in Federal Register

EPA Nutrient Criteria Recommendations Applicable to Virginia Lakes & Reservoirs

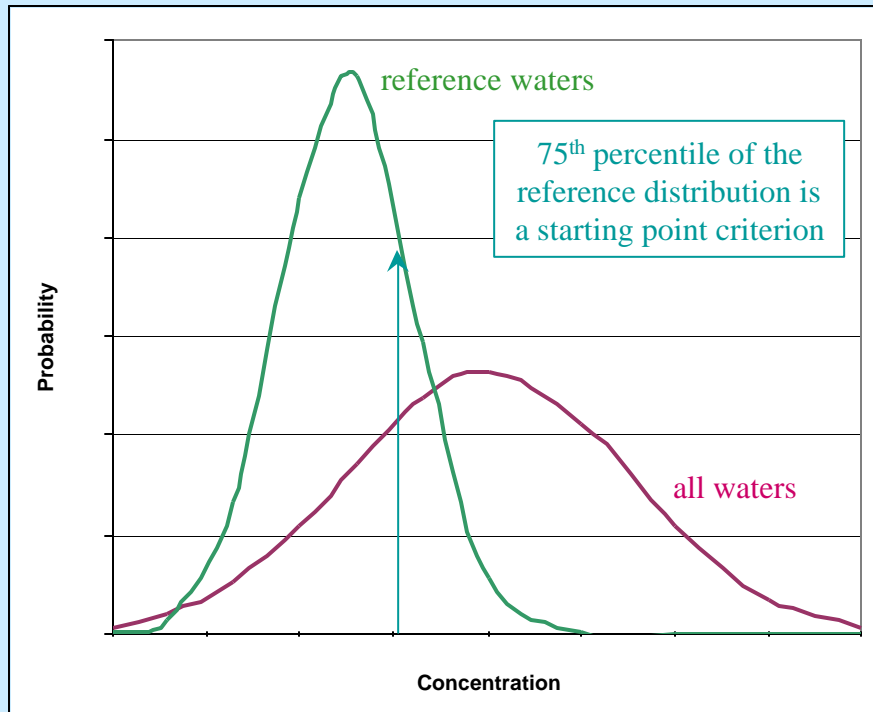
Lakes and Reservoirs	Aggregate Nutrient Ecoregions		
	<u>IX</u>	<u>XI</u>	<u>XIV</u>
<u>Parameters</u>			
TP (ug/L)	20.00	8.00	8.00
TN (mg/L)	0.36	0.46	0.32
Chl <i>a</i> (ug/L)	4.93	2.79	2.90
Secchi (m)	1.53	2.86	4.50

EPA Nutrient Criteria Recommendations Applicable to Virginia Rivers & Streams

Rivers and Streams	Aggregate Nutrient Ecoregions		
	<u>IX</u>	<u>XI</u>	<u>XIV</u>
<u>Parameters</u>			
TP (ug/L)	36.56	10.00	31.25
TN (mg/L)	0.69	0.31	0.71
Chl <i>a</i> (ug/L)	0.93	1.61	3.75
Turb (FTU/NTU)	5.70	2.30	3.04

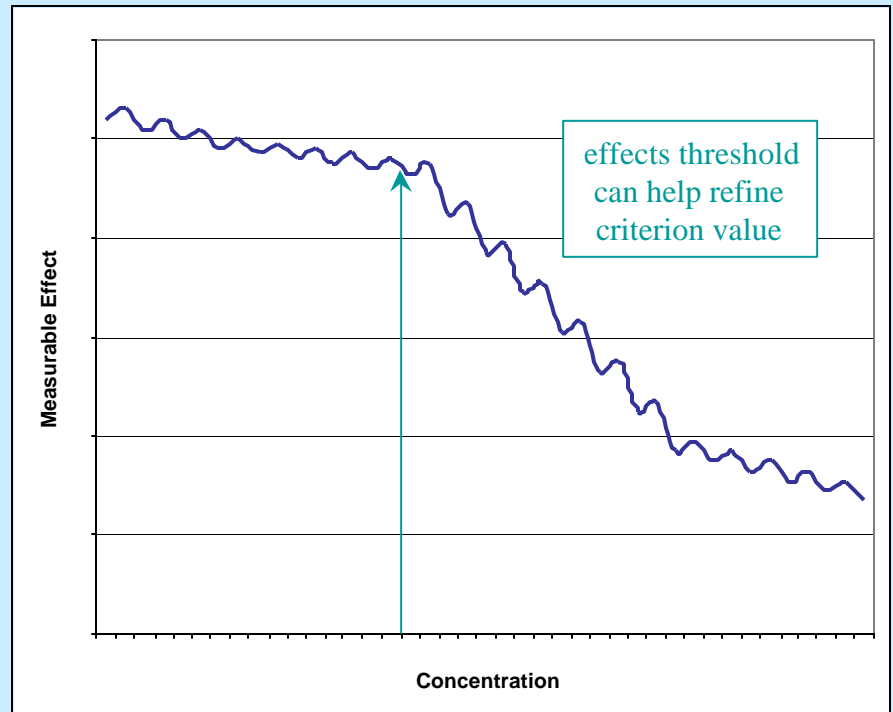
Criteria Derivation Approaches

Reference Condition Approach



Nutrient data from reference waters or all waters with similar physical characteristics

Effects Based Approach

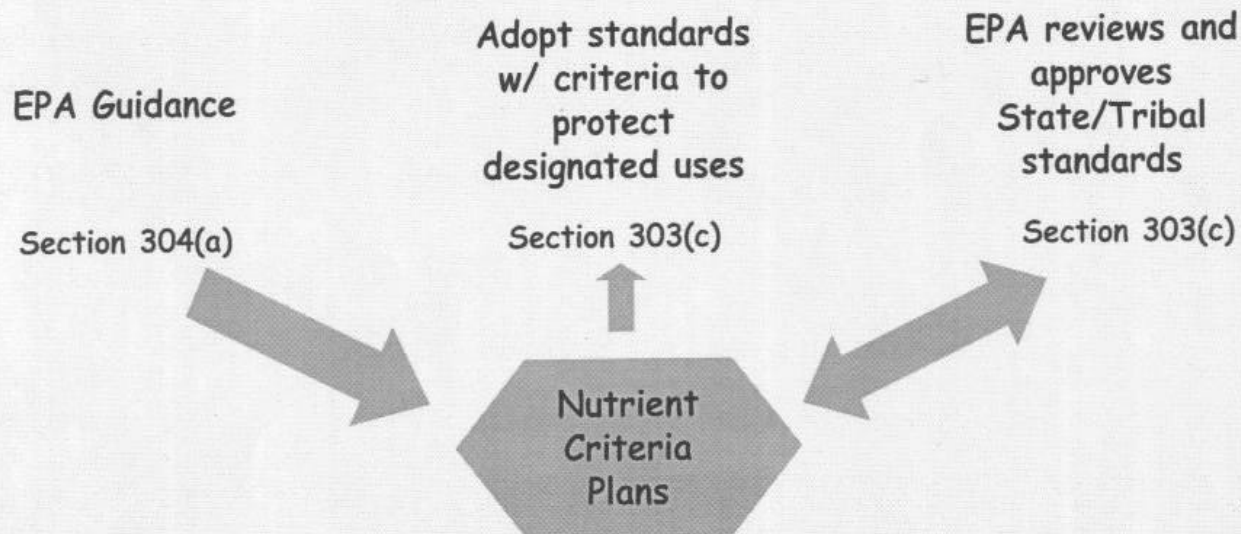


Paired nutrient and effects data from waters with similar physical characteristics

EPA Will Promulgate Nutrient Criteria for a State Unless:

- State Adopts Nutrient Criteria for Surface Waters by December, 2004, or
- State Submitted Nutrient Criteria Development Plan & Timeline to EPA for Approval by October 31, 2002 (*Option Selected by VA*)

Nutrient Criteria Plans



Nutrient Criteria Plans bridge the gap between EPA's defined statutory roles of producing criteria guidance and reviewing and approving standards

The Status of VA Plan

- VA DEQ submitted a draft plan to Region III on October 31, 2002
- DEQ made minor revisions and resubmittals at request of EPA
- In a June 15, 2004 letter EPA provided written concurrence of the version of the VA Plan resubmitted on March 30, 2004

VA Nutrient Criteria Development Plan

- VA DEQ multi-year action plan for the phased development of regulatory nutrient criteria
- Plan and associated timelines for regulatory development can be found at:
<http://www.deq.virginia.gov/wqs/rule.html#NUT2>.

Options for States in setting nutrient criteria for W/Q Standards

- Adopt EPA criteria recommendations, in absence of better data, into State WQS
- Refine EPA criteria values, to reflect more locally representative conditions
- Develop criteria using other scientifically defensible means
- Conduct use attainability studies and refine use designations

VA Plan Approach: Prioritization & Coverage

- Sequential waterbody approach with **estuaries** followed by **lakes/reservoirs** & then **rivers/streams** (Includes coastal streams not in Bay rulemaking, ocean side of Eastern Shore of VA & downstream effects from VA on NC Chowan estuary)
- Two Step Process:
 - ◆ Technical Development Criteria
 - ◆ Administrative Adoption Criteria

VA Plan: Form

- Develop region/state/local conditions criteria instead of default 304(a) criteria
- Water body type specific
- Consistency in parameter choice with neighboring state where share waterbody

Form: Lakes and Reservoirs

- Demonstrate where not need TN
- Add dissolved oxygen?
- UAAs in deep lakes where TP consistent with game fish use
- Consider seasonality and uses, especially for chlorophyll
- Carlson trophic state indices/eliminate redundant measures

Form: Rivers and Streams

- 4 variables, or
- combined index 4 variables, or
- threshold level of TP related to IBI from algal data, or
- % wetted stream perimeter coverage of macrophytes

Process: Involvement of Critical Decision-Makers

- Recommendations to SWCB based on input from:
 - ◆ academic advisory committee (AAC)
 - ◆ in-house DEQ technical staff and management
 - ◆ stakeholder workgroup
 - ◆ public comment and staff response to that comment

Activities & Milestones for Development of Nutrient Criteria for Lakes & Reservoirs:

YEAR ACTIVITIES

2003-4 Form **technical** (initially WQMIRA required Academic Advisory Committee (AAC) & **stakeholder** workgroups for technical development of the criteria, including design & implementation of a user perception study to relate user perception to criteria concentrations.

2004 Compare values based on reference lake data, user perception studies & literature values.
Use expert opinion from AAC/technical workgroup for assistance with **development of appropriate classifications, use designations & criteria for VA lakes & reservoirs.**

Activities & Milestones for Development of Nutrient Criteria for **Lakes & Reservoirs** (Cont.):

<u>Year</u>	<u>Activities</u>
2004	Issue NOIRA to initiate rulemaking to adopt nutrient criteria for lakes & reservoirs.
2005	Public hearings.
2006	Complete state rulemaking within 24 months after NOIRA published in <u>Virginia Register</u> & submit to EPA.

Activities & Milestones for Development of Nutrient Criteria for Rivers & Streams:

<u>Year</u>	<u>Activities</u>
2004	<p>Form technical (initially WQMIRA required Academic Advisory Committee) & stakeholder workgroups and as part of this effort re-evaluate 1987 TAC nutrient enriched waters recommendations for rivers & streams. Use expert opinion from AAC/technical workgroup for assistance with periphyton vs.. plankton dominated streams. Plan & initiate necessary data collection (monitoring and/or literature searches) and/or use of data from neighboring states in same sub-ecoregion.</p> <p>Demonstrate where P limited & where N criterion is not needed.</p>

Activities & Milestones for Development of Nutrient Criteria for Rivers & Streams (cont):

<u>Year</u>	<u>Activities</u>
2004	<p>Address criteria development for all estuarine waters not included in the Chesapeake Bay nutrient criteria rulemaking including the coastal streams not named in the Chesapeake Bay criteria rulemaking, the ocean side of the Eastern Shore of Virginia & eastern shore ocean side & downstream effects on the North Carolina estuary from waters in the portion of the Chowan basin.</p> <p>Evaluate feasibility of refining EPA's reference condition by creating a reference river & streams data set of least impacted Virginia freshwater rivers & streams & deriving values based on the nutrient levels found in these waters.</p>

Activities & Milestones for Development of Nutrient Criteria for Rivers & Streams (Cont.):

<u>Year</u>	<u>Activities</u>
2005	<p>Compare values based on reference rivers & streams data, periphyton dominated stream data, ambient levels, & literature values. Use expert opinion from AAC/technical workgroup for assistance with development of appropriate classifications, use designations & criteria for Virginia rivers & streams.</p> <p>Issue NOIRA to initiate rulemaking to adopt nutrient criteria for rivers & streams.</p>
2006	<p>Public hearings.</p>
2007	<p>Complete state rulemaking within 24 months after NOIRA published in <u>Virginia Register</u> & submit to EPA.</p>

Wetlands

- On Hold Until EPA Technical Guidance Document Available



Questions for AAC/Stakeholder/Public Discussion

<http://www.deq.virginia.gov/wqs/appJ.pdf>

Mail or E-mail Comments by 5:00 PM on August 31, 2004

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